Active Project (2015 - 2019)

Hypersonic Inflatable Aerodynamic Decelerator II (HIAD2) Project

Game Changing Development Program | Space Technology Mission Directorate (STMD)

ANTICIPATED BENEFITS

To NASA funded missions:

A Hypersonic Inflatable Aerodynamic Decelerator(HIAD) is an entry and descent technology to enhance, and enable, robotic and scientific missions to destinations with atmospheres such as Mars, Venus, Titan, and the gas giants. Due to the flexible softgoods, the aeroshell can be packaged into small volumes, stowed for long durations, and deployed prior to entry at a destination. The aeroshell can be manufactured to accommodate large scale aeroshell, and offers NASA the ability to down mass approximately 20x's higher mass than current rigid aeroshell technology.

DETAILED DESCRIPTION

Develop and qualify materials, control mechanisms, and structural design concepts guided by potential mission architectures. Demonstrate performance through ground-based and flight testing at Earth.

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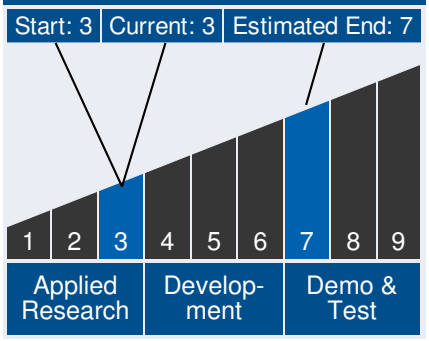
Technology Maturity



Management Team

Program Executive:

- Lanetra Tate

Program Manager:

- Mary Wusk

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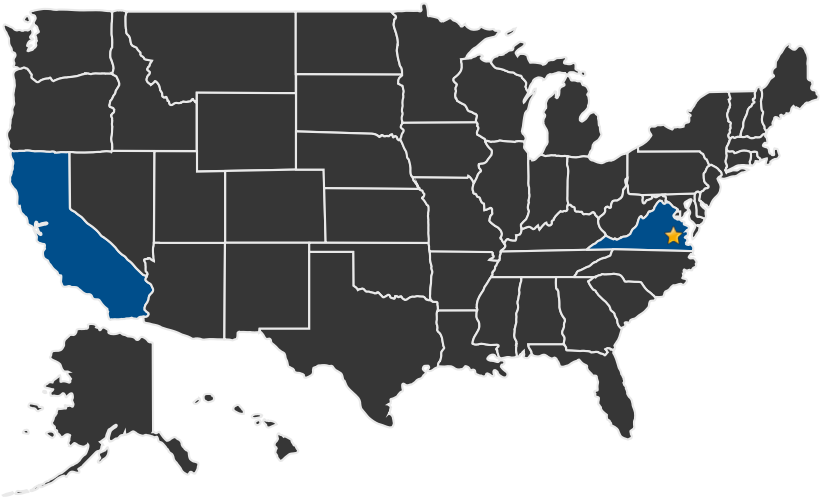
U.S. WORK LOCATIONS AND KEY PARTNERS



U.S. States With Work

Lead Center:
Langley Research Center

Management Team *(cont.)*

Project Manager:
- Kurt Detweiler

Technology Areas

Primary Technology Area:
Entry, Descent, and Landing Systems (TA 9)
- Aeroassist and Atmospheric Entry (TA 9.1)
  - Thermal Protection Systems for Deployable Decelerators (TA 9.1.2)
    - Non-Ablative Concepts for Thermal Protection (TA 9.1.2.1)

Secondary Technology Area:
Entry, Descent, and Landing Systems (TA 9)
- Aeroassist and Atmospheric Entry (TA 9.1)
  - Deployable Hypersonic Decelerators (TA 9.1.4)
    - Inflatable Entry Systems (TA 9.1.4.1)

Additional Technology Areas:
Entry, Descent, and Landing Systems (TA 9)
- Aeroassist and Atmospheric Entry (TA 9.1)
  - Deployable Hypersonic Decelerators (TA 9.1.4)
    - Advanced Guidance and Navigation Systems (TA 9.1.4.6)
- Descent and Targeting (TA 9.2)

Other Organizations Performing Work:

- Airborne Systems
- Aspen Aerogels, Inc. (Northborough, MA)
- Atkins & Pearce
- Ball Ribbon Mills
- Carolina Narrow Fabric
- Conax Florida NextGen Inflation System
- Georgia Institute of Technology
- ILC Dover
- Jackson Bon ILC
- Lockheed Martin Space Systems Company
- National Institute of Aerospace
- SGL Cargon, LLC
- Southwest Research Institute
- Textum Weaving, Inc.
- U.S. Navy
- United Launch Alliance
- University of Maine (Orono, ME)
- University of Vermont

DETAILS FOR TECHNOLOGY 1